

IN THE CLAIMS:

The following is a complete listing of the claims in this application, reflects all changes currently being made to the claims, and replaces all earlier versions and all earlier listings of the claims:

1. (Currently Amended) A tire whose tread comprises ~~at least one a~~ a plurality of first tread ~~elements~~ element and ~~at least one a plurality of~~ second tread ~~element~~ elements, each of the first and second tread elements having a contact surface that, during normal operation of a vehicle wheel equipped with the tire, comes into contact with the ground in a contact area on each revolution of the tire, the first and second tread elements being configured such that, at least under a first rolling condition, the contact surfaces ~~surface~~ of the ~~at least one~~ first tread ~~element~~ ~~slides~~ elements slide relative to the ground during ~~[[its]]~~ passage through the contact area, ~~while~~ whereas the ~~contact surfaces of the at least one~~ second tread ~~element~~ ~~does~~ elements do not slide under the first rolling condition, the ~~at least one~~ first tread ~~element~~ elements each comprising a sensor capable of producing a signal representative ~~making a measurement~~ of a level of tangential force in the contact surface of the respective ~~at least one~~ first tread element during ~~[[its]]~~ passage through the contact area, wherein all of the first tread elements are oriented to extend from the tire perpendicularly and are configured to slide under substantially the same conditions, and an estimate of a tangential force on the vehicle wheel is obtainable ~~[[obtained]]~~ based on the signal produced by each of the ~~at least one~~ first tread ~~element~~ elements, ~~the sensor in each first tread element producing a signal proportional to the tangential force acting upon that first tread element.~~

2. (Currently Amended) A tire according to claim 1, in which the first tread element ~~is~~ elements are made of a material different from that of which the second tread element ~~is~~ elements are made and which confers to the first tread element ~~element~~ elements an adherence potential lower than that of the second tread element ~~element~~ elements.

3. (Currently Amended) A tire according to claim 1, in which the first tread element ~~is~~ elements are made of a material different from the material of which the second tread element ~~is~~ elements are made and which confers to the first tread element ~~element~~ elements a wear resistance better than that of the second tread element ~~element~~ elements.

4. (Currently Amended) A tire according to claim 1, in which the first tread element ~~is~~ elements are made of a material having a Young's modulus higher than the Young's modulus of the material of which the second tread element ~~is~~ elements are made.

5. (Currently Amended) A tire according to claim 1, in which the contact surface ~~surface~~ surfaces of the first tread element ~~is~~ elements are located at a distance from the wheel axle that is less than the distance of the contact surface ~~surface~~ surfaces of the second tread element ~~element~~ elements from the wheel axle.

6. (Currently Amended) A tire according to claim 1, in which the tread further comprises ~~means that constitute a sensor~~ sensors within the second tread element ~~elements~~ elements, each sensor ~~being~~ which is sensitive at least to a tangential force in the

contact surface of the respective second tread element during ~~[[its]]~~ passage through the contact area.

7. (Currently Amended) ~~A tire according to claim 1, in which~~ A tire whose tread comprises at least one first tread element and at least one second tread element, each of the first and second tread elements having a contact surface that, during normal operation of a vehicle wheel equipped with the tire, comes into contact with the ground in a contact area on each revolution of the tire, the first and second tread elements being configured such that, at least under a first rolling condition, the contact surface of the at least one first tread element slides relative to the ground during passage through the contact area, whereas the contact surfaces of the at least one second tread element does not slide under the first rolling condition, the at least one first tread element comprising a sensor capable of producing a signal representative of a level of tangential force in the contact surface of the at least one first tread element during passage through the contact area, wherein:

an estimate of a tangential force on the vehicle wheel is obtainable based on the signal produced by the at least one first tread element;

the first tread element, viewed at the surface of the tread, has a central zone surrounded by an encircling zone, the sensor being disposed so as to achieve a measurement in the central zone and being sensitive to at least one tangential force exerted at the surface of the central ~~zone~~; zone;

the surface area of the central zone is at least substantially equivalent to the surface area of the encircling zone;

the surface of the central zone is located at a distance from the wheel axle that is less than the distance of a surface of the encircling zone; and

wherein the central zone has a resistance to a force directed perpendicular to the surface of the tread which is less than a resistance to a force directed perpendicular to the surface of the tread offered by the encircling zone.

8. (Cancelled).

9. (Original) A tire according to claim 7, in which, L_r being the length of the first tread element in the preferred rolling direction, L_g being the length of the first tread element in the direction perpendicular to the preferred rolling direction, L_1 being the length of the central zone in the preferred rolling direction, L_2 being the length of the central zone in the direction perpendicular to the preferred rolling direction, d_r being the minimum length measurable on the encircling zone in the preferred rolling direction, d_g being the minimum length measurable on the encircling zone in the direction perpendicular to the preferred rolling direction, the following relations are obeyed: $d_r > L_r/10$, $d_g > L_g/10$, $L_r/5 < L_1 < 4L_r/5$ and $L_g/5 < L_2 < 4L_g/5$.

10. (Original) A tire according to claim 7, in which the center of mass of the first tread element is in the central zone.

11. (Cancelled).

12. (Original) A tire according to claim 7, in which a thin recess strip relieves of stress the material situated radially beneath the surface of the central zone as compared with the adjacent material situated beneath the encircling zone.

13. (Original) A tire according to claim 7, in which a plurality of cutouts in the shape of wells are molded into the central zone.

14. (Original) A tire according to claim 13, in which the cutouts are at least partially inclined.

15. (Original) A tire according to claim 7, in which the Young's modulus of the material situated beneath the central zone is smaller than the Young's modulus of the adjacent material situated beneath the encircling zone.

16. (Original) A tire according to claim 12, in which the thickness of the thin strip is approximately 0.3 mm to 2 mm.

17. (Previously Presented) A tire according to claim 12, in which the thin strip is at least partially inclined.

18. (Original) A tire according to claim 1, in which the tread includes sufficient first tread elements to ensure that there is always at least one first tread element in the contact zone with the ground during each revolution of the tire.

19. (Currently Amended) A tire according to claim 1, in which, for each of the first tread elements, the ~~means that constitute~~ a sensor is embedded in the first tread element.

20. (Currently Amended) A tire according to claim 19, in which, for each of the first tread elements, the sensor is arranged radially inside of the tread intended to become worn during the use of the tire.

21. (Currently Amended) A tire according to claim 1, in which, for each of the first tread elements, the sensor comprises a device or devices with Hall effect.

22-30. (Cancelled)

31. (Currently Amended) A tire whose tread comprises ~~at least one a plurality of~~ first tread element ~~elements~~ and ~~at least one a plurality of~~ second tread element ~~elements~~, each of the first and second tread elements having a contact surface that, during normal operation of a vehicle wheel equipped with the tire, comes into contact with the ground in a contact area on each revolution of the tire, the first and second tread elements being configured such that, at least under a first rolling condition, the contact surfaces surface of the ~~at least one~~ first tread ~~element slides~~ elements slide relative to the ground during ~~[[its]]~~ passage through the contact area, ~~while~~ whereas the contact surfaces of the ~~at least one~~ second tread ~~element slides~~ elements slide, under the first rolling condition,

insufficiently to allow measurement of tangential force, the ~~at least one~~ first tread element ~~elements each~~ comprising a sensor capable of producing a signal representative making a measurement of a level of tangential force in the contact surface of the respective at least one first tread element during [[its]] passage through the contact area, wherein all of the first tread elements are oriented to extend from the tire perpendicularly and are configured to slide under substantially the same conditions, and an estimate of a tangential force on the vehicle wheel is obtainable [[obtained]] based on the signal produced by each of the at least one first tread element elements, ~~the sensor in each first tread element producing a signal proportional to the tangential force acting upon that first tread element.~~

32. (Cancelled).

33. (Currently Amended) A tire according to claim 1, wherein ~~the tire comprises more than one first tread element and~~ a plurality of estimates of tangential force on the vehicle wheel are obtainable ~~determined~~, each estimate corresponding to a signal from one of the first tread elements.